

AMENDMENTS TO THE CLAIMS

1-36. (canceled)

37. (currently amended) A method of identifying a therapeutic lead compound that modulates activity of a cytoskeletal system, said method comprising:

- i) providing an assay mixture comprising a first component ~~of a~~ of said cytoskeletal system and a second component ~~of a~~ of said cytoskeletal system, wherein said cytoskeletal system is a microtubule system, and wherein said first component comprises a kinesin motor protein and said second component comprises a tubulin protein that specifically bind to each other;
- ii) contacting said assay mixture with a test compound to be screened for the ability to inhibit or enhance binding between said first component and said second component;
- iii) detecting a change in coupling between ATP hydrolysis and force generation; wherein said change indicates that said compound modulates activity ~~of a~~ said cytoskeletal system.

38-69. (canceled)

70. (new) The method of claim 37, further comprising step iv) testing said test compound on a variety of ATPases.

71. (new) The method of claim 37, wherein said assay mixture comprises a cell lysate.

72. (new) The method of claim 37, wherein said at least 50 test compounds are screened simultaneously.

73. (new) The method of claim 37, wherein said compound which is identified is a lead therapeutic for animal or human disease.